FMD in Uruguay in 2001

The outbreak of foot and mouth disease (FMD) in Uruguay in April 2001 illustrates how vaccination can be effective in controlling and eradicating this disease. The UK and Uruguay are approximately the same size, but the UK has 1.6 million cattle and Uruguay has 10.6 million cattle. The UK has more sheep and pigs. The two countries had a similar number of FMD outbreaks, however their approach to FMD was drastically different. The UK used a stamping-out policy with no vaccination, while Uruguay used very little stamping out and massive vaccination. In Uruguay, a little over 6,900 animals were killed, and over 24 million doses of vaccine were used. In the UK, more than 6 million animals were killed. The two outbreaks lasted about the same time. The costs in the UK were approximately US$5 billion to agriculture and the food chain and an additional US$5 billion from loss of tourism. Costs of the outbreak in Uruguay were US$243.6 million.

In 1987, the countries of South America signed a Hemispheric Plan for the Eradication of Foot-and-Mouth Disease (PHEFA). The adoption of PHEFA resulted in changes over the next 10 years that strengthened veterinary systems and promoted private sector cooperation in control and eradication activities. This resulted in an overall improvement in national animal health programs and services in nearly all countries.

Uruguay was recognized by the OIE as "FMD free where vaccination is practiced" in 1994 and in the same year discontinued vaccination, in hopes of obtaining the status of "FMD free without vaccination." This goal was achieved in 1996. Argentina and Paraguay stopped vaccinating in 1999, as did portions of Brazil in 2000, also hoping to achieve the "FMD free without vaccination" status.

While the region was designated free without vaccination, it was at great risk for FMD because of the progressive loss of protection of cattle over a short period of time, continual danger of the spread of FMD from remaining endemic areas, and the movement of large numbers of susceptible livestock. Because they were free of FMD, the countries involved devoted fewer people and resources to the project and surveillance and communication systems between countries failed. Education and training of public and private individuals also decreased and political and commercial interests became more important than sanitary requirements. In a few years, the entire veterinary infrastructure which had created awareness and conducted surveillance was weakened, and FMD invaded the southern region of South America, including Uruguay.

Livestock in Uruguay

Livestock production represents more than 65 percent of the Uruguayan exports in the form of meat, wool, milk, hides and by-products. In 2001, there were 10.6 million cattle, 12.1 million sheep, 480,000 horses, and 270,000 pigs. Cattle and sheep share pastures. The mixed grazing and the presence of unvaccinated sheep did not hamper the eradication of FMD by vaccinating cattle only.

In October 2000, FMD type O_1 was found in a farm that was very close to the state of Rio Grande do Sul in Brazil. The herd had 322 cattle, 63 sheep and 47 pigs. The outbreak was contained and eradicated by the stamping out of diseased animals and exposed contact animals. A

total of 6,924 cattle, 12,371 sheep and 257 pigs were destroyed, and a 25 km area was quarantined. The OIE re-established the FMD free status in January, 2001.

Introduction of FMD type A

However, in April, FMD type A appeared in Uruguay, from Argentina. It was first reported in Palmitas, Soriano Department (state), which is approximately 70 km from the Argentina border, along the Uruguay River, which separates Uruguay from Argentina. The affected farm had 430 cattle and 640 sheep. Thirty-nine steers showed FMD signs and lesions. Two days later a second outbreak was found in a neighboring farm with 773 cattle, 474 sheep and 10 pigs. At the same time several FMD outbreaks occurred in the adjacent Colonia Department, 25 km from the Uruguay River and 40 km from the first discovered cases.

The next day, the affected and exposed animals were destroyed and buried (5,093 cattle, 1,511 sheep and 333 pigs). Three days later, the government was forced to suspend the stamping-out procedure because of strong resistance by local farmers and the discovery that the disease had spread to other departments in the country. The virus is thought to have spread because of the intense movements of people, agricultural equipment and machinery, and trucks for the transport of beef cattle and milk. The zone where the outbreak first occurred is economically integrated with the adjacent region of Argentina where FMD was occurring.

Both affected departments were quarantined and on April 26, ring vaccination was started in an area with a 10 km radius around the infected farms. On April 30 vaccination was extended to form a protective barrier. However, authorities discovered that a few days before the FMD outbreak was recognized, cattle had been sold at an auction to other departments of the country and that the epidemic had already spread to other regions of the country. From April 27 to June 7, all movement and trade of animals were prohibited throughout Uruguay.

The vaccination program

On May 5, a massive vaccination program was initiated for all cattle. Uruguayan veterinary services established a vaccination timetable, scheduling routes, dates, and times. The official veterinary services had an active role in the control of the vaccination procedures at the farm level. Vaccination was first given in all Uruguayan departments adjacent to the State of Rio Grande do Sul, Brazil, in order to protect Brazilian livestock. The vaccine was given to farmers by authorities for free. Farmers had to vaccinate within a defined date. Vaccination proceeded from north to south and from east to west and was completed on June 7; movement and transit restrictions were then relaxed. Serological tests were then used by the government to ensure vaccination compliance, which was demonstrated at 99 percent. Almost 11 million cattle were vaccinated, while the 12 million sheep grazing beside them were not. Pigs were not vaccinated either, as the vaccine that was used was not thought to be effective in that species.

Re-vaccination began on June 15 and lasted until July 22. A total of 24 million doses of FMD oil-adjuvant vaccines were distributed during the two vaccination rounds and covered the 10.6 million cattle in each round. Dairy cattle were vaccinated in one week with a vaccination rate of 67,000 head per day. By November 2001, an additional 4.5 million young cattle were vaccinated and each animal was identified by an ear-tag tracking system.

The total number of outbreaks was 2,057, of these 264, were dairy farms. A total of 6,937 animals were killed and buried during the first week of the epidemic. The last outbreak occurred on a dairy farm on August 21. By October, Uruguay was again free of FMD, with vaccination. At the height of the epidemic, there were 40-60 new infected farms each day. After the end of the first vaccination round, and even with relaxing the livestock movement restrictions, the number of new cases decreased to single digits. A few days after the completion of the re-vaccination round, there were only a few sporadic cases.

Vaccination of all cattle was carried out again in February 2002 and May 2002, and all cattle born up to August 2002 were vaccinated. There were no documented cases of vaccinated animals causing new outbreaks.

Conclusion

In summary, Uruguay was able to control and eradicate this extensive outbreak with the application of livestock movement restrictions and vaccination of the cattle population only, in spite of having a large and fully susceptible sheep population in close contact and proximity to the cattle. The total cost of eradicating the epidemic was US$13.6 million. Purchase of vaccine accounted for $7.5 million and the remainder was for compensation payment to farmers, cleaning and disinfection and operating expenses. The $13.6 million figure does not include some of the expenses of the Army, which collaborated by controlling border areas for illegal livestock movements, and provided other support.

The loss of export markets and the pronounced decrease in livestock prices was costly for Uruguay, due to economic losses by the livestock production sector and national trade. The financial losses of the meat and dairy producers had the greatest negative impact on the national economy. In addition, the movement restrictions on the entire livestock sector, including packing plants also affected many workers. It is estimated that the total losses as a result of the closing of external markets exceeded US$200 million. In addition, 380 containers with meat in transatlantic transit were returned for security reasons. This loss in combination with the losses related to the closed packing plants amounted to a total of US$30 million.

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